



poster ABSTRACT

Poster No. 14

TITLE

POTENTIAL PROBLEMS WHEN LINKING NEW JERSEY CENSUS TRACT VALUES TO CANCER CASES GEOCODED BY ZIP CODE

SUMMARY

In this poster, we explore potential differences in ecological analysis results and geographical cluster analysis results when cases geocoded to zip code centroids are excluded, or when different percentages of zip code cases were included and randomly allocated to different census tracts within their zip code zones. To test potential differences we used two cancer data sets: 1) New Jersey leukemia cases linked to census tract level ambient benzene exposure estimates, and 2) New Jersey colorectal cancer cases. Using the leukemia cases, we were interested in whether geocoding success rates and the reallocation of zip code cases to new census tracts within their zip code zones changed measurements of association between benzene in ambient air and population-based leukemia incidence rates. For the colorectal cancer cases we were interested in how these same geocoding problems might change the geographical cluster locations of higher than expected incidence rates. To quantify the potential differences we ran an imputation procedure 5000 times to randomly place cases geocoded to a zip code into one of the potential census tracts falling within their zip code boundary. After each census tract imputation run, we recalculated our rate ratios for the leukemia cases, and repeated our geographical cluster analysis of higher than expected incidence of colorectal cancer. We have concluded that attention must be paid to the geographical pattern of geocoding success, particularly if the exposure varies with the geographic pattern of missing cases. Particular attention should be paid to the percent of cases geocoded to a zip code centroid, versus cases geocoded to a street segment line using the full address. We recommend that all cases should be included when doing spatial analysis unless the pattern of missing cases is random.

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